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DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

Government-Owned Inventions; Availability for Licensing

AGENCY: National Institutes of Health

ACTION: Notice

SUMMARY: The inventions listed below are owned by an agency of the U.S.

Government and are available for licensing in the U.S. in accordance with 35 U.S.C. 209 and 37 CFR Part 404 to achieve expeditious commercialization of results of federally-funded research and development.

FOR FURTHER INFORMATION CONTACT: Licensing information may be obtained by emailing the indicated licensing contact at the National Heart, Lung, and Blood, Office of Technology Transfer and Development Office of Technology Transfer, 31 Center Drive Room 4A29, MSC2479, Bethesda, MD 20892-2479; telephone: 301-402-5579. A signed Confidential Disclosure Agreement may be required to receive any unpublished information.

SUPPLEMENTARY INFORMATION: Technology description follows.

Long Acting Therapeutic Conjugates with Evans Blue

This invention is a platform technology that pertains to the advantages of conjugating

therapeutics to Evans Blue thus providing long lasting pharmacokinetic profiles by complexing with albumin. Notably, albumin bound therapeutic- or prodrug-Evans Blue conjugates provide a complex with a total molecular size above 60 kDa thus eliminating the risk for renal clearance. Interestingly, since albumin also crosses the blood-brain barrier and since all circulating Evans Blue is bound to albumin, Evans Blue bound therapeutics or prodrugs can also cross the blood-brain barrier. By way for example but not limitation, Evans Blue can be conjugated to insulin, GLP-1, exendin-4, exendin (9-39), octreotide, bombesin, RGD peptide (arginylglycylaspartic acid), vascular endothelial growth factor (VEGF), interferon (IFN), tumor necrosis factor (TNF), asparaginase, or adenosine deaminase, exenatide, dipeptidyl peptidase-4 inhibitors, neuropilin, epidermal growth factor, islet neogenesis associated protein, alpha-1 antitrypsin, anti-inflammatory agents, glulisine, glucagons, local cytokines, modulators of cytokines, anti-apoptotic molecules, aptamers, asparaginase, adenosine deaminase, interferon α 2a, interferon α 2b, granulocyte colony stimulating factor, growth hormone receptor antagonists, doxorubicin, paclitaxel, gemcitabine, camptothecin, and temozolomide. Evans Blue conjugates according to this invention can additionally include radionuclides like ^{18}F , ^{76}Br , ^{124}I , ^{125}I , or ^{131}I , or $^{117\text{m}}\text{Sn}$ for tracking or use in diagnostics.

Potential Commercial Applications:

- Diabetes therapeutics
- Cancer therapeutics
- CNS therapeutics
- Pharmacokinetic/distribution studies

Competitive Advantages

- long pharmacokinetic profile
- no renal clearance of circulating drug

Development Stage:

- Early stage

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Intellectual Property: HHS Reference No. E-143-2015/0; U.S. Provisional Patent Application 62/182,694 filed June 22, 2015; International Patent Application PCT/US2016/38475 filed June 21, 2016.

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